

1. A multiple force tool for applying pressure to circuit board components comprising:

first, second and third support channels for supporting first, second and third horizontally extending arms over a circuit board having multiple components;

a plurality of pressure cylinders supported by said horizontally extending arms over each of said components; and

means connected to said pressure cylinders for extending a pressure foot of said cylinders to a position for applying a force against said components.

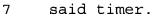
- 2. The multiple force tool according to claim 1 wherein said horizontally extending arms are positionable along said channels to vary the location of said pressure cylinders along a first axis.
- 3. The multiple force tool according to claim 1 wherein said horizontally extending arms include means for positioning said pressure transducers along a second axis.
- 4. The multiple force tool according to claim 2 wherein said channels include position indicia for establishing a position coordinate for said pressure cylinders along said first axis.
- 5. A multiple force tool for establishing a pressure on circuit board components during manufacture of a circuit board bearing said components comprising:

EN997114

| | first, se | cond, | and thin | d char | nels fo | or suppo | orting a |
|-----------|-------------|-------|----------|---------|---------|----------|----------|
| plurality | of horiz | ontal | arms, s | said cl | nannels | being | located |
| about the | e periphery | of a | surface | which | support | s said | circuit |
| board: | | | | | } | | |

- a plurality of horizontal arms supported in said channels which extend over said circuit board;
- a plurality of compressed air pressure cylinders supported on said horizontal arms, having a pressure foot which is extendable in response to compressed air to apply a force on a component of said circuit board located beneath said pressure foot; and
- a source of compressed air connected to said compressed air pressure cylinders, operable in response to a foot valve for extending said pressure feet against said circuit components.
- 6. The multiple force tool according to claim 5 wherein said source of compressed air supplies a pulse of air pressure having a preset duration and magnitude.
- 7. The multiple force tool according to claim 5 wherein said compressed air is supplied through a flow control valve to said compressed air pressure cylinders for regulating the speed of extension of said pressure foot.
- 8. The multiple force tool according to claim 5 wherein said source of compressed air comprises:
- a timer means which operates in response to a closure of said foot valve to produce a timed pulse of compressed air to said compressed air cylinders whereby said pressure feet are extended for a period of time controlled by

EN997114



1

2

3

5

- 9. The multiple force tool according to claim 8 further comprising a pressure regulator connected to said timer means for receiving said pulse of compressed air and connected to a manifold which supplies said pulse of compressed air to said compressed air cylinders.
- 1 10. The multiple force tool according to claim 9 2 further comprising a flow control valve connected between 3 each of said compressed air cylinders and said manifold.

EN997114